

**Abstract ID :** 769

**Title :** Assessing dietary preferences of free-ranging bottlenose dolphins (*Tursiops truncatus*) using fatty acid signature analysis.

**Category :** Ecology

**Student :** Not Applicable

**Preferred Format :** Poster Presentation

**Abstract :** The Indian River Lagoon (east central Florida) is a unique system in which to study the feeding ecology of a top level predator such as the bottlenose dolphin because individuals remain in the relatively closed system year-round. Previous studies, using stomach content analyses, indicated that the primary prey species include mullet, spotted seatrout, oyster toadfish, Atlantic croaker, spot, pinfish, pigfish, silver perch, and southern kingfish. The purpose of the present study was to evaluate gross and fatty acid composition of dolphin blubber samples (dead-stranded and live biopsy) and compare these values with a prey database to interpret feeding habits. Gross composition of prey samples was determined and fatty acid (FA) composition of both prey and blubber were assessed using gas-liquid chromatography of fatty acid methyl esters. Composition data indicate that gross lipid content varies from 1% (spotted seatrout) to 30% (pigfish), and is dependent on season. Water content varies from 30% (pinfish) to 80% (southern kingfish) and is also seasonally dependent. FA composition of white mullet, spotted seatrout, and pinfish differed from other fish species in >85% of samples using classification and regression tree (CART) analyses. Seasonal differences in FA composition were also evident within fish species. Blubber samples from male and female dolphins could be distinguished >80% of the time based solely on their FA composition using CART. When prey and dolphin samples were combined together, fish were distinguishable from dolphin samples more than 90% of the time at the terminal nodes of CART analyses; however, blubber samples did group with mullet, spotted seatrout, and pinfish on some branches of the tree. Interpretation of prey and blubber FA composition is consistent with previous diet analyses, suggesting that fatty acid signature analysis could be a valuable tool in interpreting dolphin feeding ecology.